

## REMARKS

In the present Amendment, claims 1-3, 6-11, 13-16 and 20-25 have been canceled without prejudice or disclaimer; claims 26-32 have been added; and no claims have been amended. Support for new claims 26-32 may be found throughout the specification and claims as originally filed and add no new matter as discussed below. Accordingly, upon entry of the present Amendment, claims 26-32 are under consideration.

Applicant thanks the Examiner for the Examiner's Interview conducted on Tuesday, May 10, 2011 between Applicant's representatives, Dr. Sayari and the Examiner. The subject matter of the Interview included a general discussion of the prior art as well as potential claim amendments to overcome the outstanding rejections.

### Claim Amendments

New claim 26 is directed to "a water-tolerant, regenerable adsorbent for use in an acid gas dry scrubbing process, the adsorbent comprising mesoporous silica or organosilica, wherein amine-containing molecules are dispersed within a hydrophobic layer on a surface of the mesoporous silica or organosilica, and wherein the adsorbent has a carbon dioxide adsorption capacity of at least 11.70 cc/g at standard temperature and pressure."

Support for new claim 26 can be found at least in original claims 1 and 4, Figure 4 and page 12, lines 1 to 18 of the description, as well as Table 3. Claim 27 is based on claim 8. Claim 28 is based on claims 9 and 11. Claim 29 is based on claim 21. Claims 30-32 are based on claims 22-24, respectively. Accordingly, Applicant respectfully asserts that the new claims are fully supported by the specification and claims as originally filed and therefore add no new matter. As such, Applicant respectfully requests entry and consideration of the amendments and new claims.

As stated in the specification, introduction of an amine-containing molecule to the expanded-extracted mesoporous silica results in the amine-containing molecule being dispersed on and within the hydrophobic surface layer within the silica mesopores. Pore expansion may be carried out through direct synthesis in the presence of swelling agents such as long chain amines,

hydrocarbons and trimethylbenzene, or via post-synthesis treatment in the presence of swelling agents, such as N,N-dimethylalkylamines, as generally depicted in Figure 4. These correspond to “Type II” adsorbents. As shown in Tables 3 and 4, Type II adsorbents have a unique pore surface hydrophobicity and demonstrate advantageously and surprisingly high CO<sub>2</sub> adsorption capacity.

### **Rejections under 35 U.S.C. §102**

Applicant respectfully traverses the rejection of claims 1-3, 6-11, and 13 under 35 U.S.C. §102(b), as allegedly being anticipated by Leal *et al.* (*Inorganica Chimica Acta* 240: 183-189, 1993; hereinafter “Leal”).

To anticipate, a single reference must inherently or expressly teach each and every element of claimed invention. *In re Spada*, 15 USPQ2d 1655 (Fed Cir. 1990); and *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). M.P.E.P. § 2131.

Without acquiescing to the rationale presented in the Office Action, Applicant has canceled claims 1-3, 6-11, and 13 without prejudice or disclaimer rendering the rejection moot. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

### **Rejections under 35 U.S.C. §103**

Applicant respectfully traverses the rejection of claims 1-3, 6, 8-11, 13-16, and 20-24 under 35 U.S.C. §103(a) as allegedly being unpatentable over Birbara, *et al.* (U.S. Pat. No. 5,876,488; hereinafter, “Birbara”) in view of Stein, *et al.* (*Advanced Materials* 12(19) p. 1403-1419, 2000; hereinafter, “Stein”).

Without acquiescing to the rationale presented in the Office Action, Applicant has canceled claims 1-3, 6, 8-11, 13-16, and 20-24 without prejudice or disclaimer rendering the rejection moot. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Applicant respectfully traverses the rejection of claims 7, 20, and 25 under 35 U.S.C. §103(a) as allegedly being unpatentable over Birbara in view of Stein, as provided above, and further in view of Sayari.

Without acquiescing to the rationale presented in the Office Action, Applicant has canceled claims 7, 20, and 25 without prejudice or disclaimer rendering the rejection moot. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested

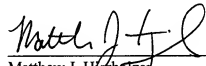
### CONCLUSION

In view of the amendments and above remarks, it is submitted that the claims are in condition for allowance, and a notice to that effect is respectfully requested. The Examiner is invited to contact Applicant's undersigned representative if there are any questions relating to this application.

The Commissioner is hereby authorized to charge the total amount of \$650.00 to cover the payment of a Request for Continued Examination fee (\$405.00) along with a Two-Month Extension of Time fee (\$245.00), small entity, to Deposit Account No. 07-1896. No other fees are deemed necessary with the filing of this paper. However, if any additional fees are due, the Commissioner is further authorized to charge any fees, or make any credits, to Deposit Account No. 07-1896 referencing the above-identified attorney docket number.

Respectfully submitted,

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